

#3692

OK

WATER QUALITY MEMORANDUM

Utah Coal Regulatory Program

May 26, 2011

TO: Internal File

THRU: James D. Smith, Permit Supervisor *JS 06/01/11*

FROM: Kevin Lundmark, Environmental Scientist II *KWL*

RE: 2010 Fourth Quarter Water Monitoring, Alton Coal Development LLC, Coal Hollow, C/025/0005, WQ10-4, Task ID #3692

The Coal Hollow mine is an active surface mine. The permit application was approved on October 15, 2009 and a Permit was issued to Alton Coal Development, LLC (ACD) on November 8, 2010. Mining activity commenced in November 2010. Surface mining of coal at the Coal Hollow mine is expected to continue for approximately three years.

The water monitoring program for the Coal Hollow mine is described in Section 731.200 of the MRP. Water monitoring locations are listed in Table 7-5 and shown on Drawing 7-10. Monitoring protocols are described in Table 7-4 and the specific protocol(s) assigned for each location are listed in Table 7-5. Operational/Reclamation and Baseline monitoring parameters are listed for surface water on Table 7-6A and Table 7-6B, respectively, and for groundwater on Table 7-7A and 7-7B, respectively. Special Condition No. 4 of the mine Permit requires the Permittee to monitor for selenium where water leaves the minesite, during operational and reclamation phases.

This report was prepared from monitoring data queried from the UDOGM database. The data that support this report were collected and submitted to the database by Alton Coal Development (ACD). The data were downloaded into file O:\025005.COL\WATER QUALITY\SPREADSHEETS COL_WQ.xls for this review.

1. Were data submitted for all required sites?

Springs YES [X] NO []

Twelve springs are monitored quarterly (Table 7-5). All of the spring locations except one (SP-3) are located in Sink Valley Wash (Drawing 7-10). Spring location SP-19 is not shown on Drawing 7-10, but is shown on Drawing 7-1 (Spring and Seep Locations). Eight springs are monitored for field parameters only: Sorensen Spring, SP-14, SP-16, SP-19, SP-20, SP-22 and

SP-23. Four springs are monitored for field parameters and laboratory analyses: SP-4, SP-6, SP-8 and SP-33.

All required springs were monitored according to the schedule and the data were submitted. Flow was recorded for all spring sites, with measured flow rates ranging from 0.103 gpm (SP-19) to 17.9 gpm (SP-8).

Streams YES ☒ NO ☐

Ten stream sites are monitored quarterly. Field parameters and laboratory analyses are performed for SW-2 (Kanab Creek below Robinson Creek); SW-3 (Kanab Creek above permit area); SW-4 and SW-5 (Lower Robinson Creek [LRC] above permit area and above Kanab Creek, respectively); SW-6 (Sink Valley wash at permit boundary); SW-8 (Swapp Hollow Creek above permit area); and SW-9 (Sink Valley Wash below permit area). Field parameters only are measured at locations BLM-1 (LRC adjacent to mined areas); RID-1 (irrigation ditch in Robinson Creek); and SW-101 (LRC in permit area).

All required stream sites were monitored for the quarter during December 6 to 8, 2010. No flow was reported for stream monitoring sites SW-101, SW-6, SW-9 and SW-101. Flows reported for other sites ranged from 0.21 gpm (SW-5) to 3051 gpm (SW-3).

Additional monitoring data were collected at site SW-101 (LRC in the permit area) opportunistically on October 5, 2010 shortly after a heavy precipitation event. The flow reported was 8080 gpm.

Wells YES ☒ NO ☐

Table 7-5 identifies 32 wells which will be monitored quarterly when accessible. Wells will be monitored for water elevation only except for the following five wells, which will be monitored for water elevation and laboratory parameters: Y-61 (artesian Sink Valley alluvium above mining), LR-45 (LRC alluvium below mining), LS-85 (artesian Sink Valley alluvium below mining), SS-30 (Sink Valley alluvium below mining) and UR-70 (LRC alluvium above mining). Several wells are expected to be destroyed or rendered inoperable due to mining activities (MRP page 7-59). These wells are to be monitored quarterly until they are destroyed or rendered inoperable.

The required groundwater wells were monitored during fourth quarter 2010.

UPDES YES ☐ NO ☒

Discharges from the Coal Hollow mine are authorized under UPDES General Permit for Coal Mining application number UTG040027. The UPDES permit, which expires on April 30, 2013, authorizes discharges from five outfalls: 001, 001B, 002, 003 and 004. These outfalls

correspond to sediment ponds 1, 1B, 2, 3 and 4. Sediment pond locations are shown on Drawing 5-25. The UPDES permit identifies monitoring frequency and required parameters, effluent limitations, and storm water requirements. To date sediment ponds 1, 1B, 2 and 3 have been constructed.

The Operator has not submitted discharge monitoring report (DMR) data electronically to the Division's water database. Special Condition No. 1 of the mine Permit requires the Operator to submit water quality data for the Coal Hollow Mine in an electronic format through the Electronic Data Input web site.

2. Were all required parameters reported for each site?

Springs YES [X] NO []

Streams YES [X] NO []

Stream samples were analyzed for the required operational monitoring parameters specified in the MRP. Special Condition No. 4 of the mine Permit requires the Permittee to monitor for selenium where water leaves the minesite, during operational and reclamation phases. Samples from stream sites SW-2, SW-3, SW-5 and SW-8 were analyzed for dissolved selenium. No sample was collected at stream site BLM-1 because this location is specified for field measurements only during operational monitoring. However, site BLM-1 is located in LRC outside the permit area and downstream of mining activities, therefore this location may be considered to designate as a location "where water leaves the minesite". The Operator should update the water monitoring section of the MRP to clearly indicate the locations and frequencies where dissolved selenium monitoring will be performed to comply with Permit Condition No. 4.

Wells YES [X] NO []

UPDES YES [] NO [X]

The Operator has not submitted discharge monitoring report (DMR) data electronically to the Division's water database. In addition to the monitoring requirements established by the UPDES permit, Special Condition No. 4 of the mine Permit requires the Permittee to monitor for selenium where water leaves the minesite, during operational and reclamation phases.

3. Were irregularities found in the data?

Springs YES [X] NO []

The total dissolved solids (TDS) reported for spring SP-14 was 421 mg/L, which is slightly less than the range of TDS previously reported for this location (425 mg/L to 461 mg/L),

and differs from the average value (444.63 mg/L) by 2.07 times the standard deviation. The result for dissolved magnesium at spring SP-14 (51.57 mg/L) was the lowest concentration reported to date and differed from the average concentration (56.10) by 4.05 times the standard deviation. The cation-anion balance for this sample was acceptable.

The result for dissolved sodium for spring SP-8 (7.67 mg/L) was flagged at upload as differing from the average concentration (6.89 mg/L) by greater than two times the standard deviation (0.31 mg/L). The dissolved sodium concentration reported for fourth quarter 2010 is within the range of concentrations previously reported for this location (6.56 mg/L to 8.84 mg/L).

Streams YES ☒ NO ☐

Stream location RID-1 was reported with conductivity of 504 $\mu\text{S}/\text{cm}$, which is greater than the previous conductivity values reported for this site (307 $\mu\text{S}/\text{cm}$ to 470 $\mu\text{S}/\text{cm}$). This conductivity value was also flagged as differing from the average reported value (390.86 $\mu\text{S}/\text{cm}$) by greater than two times the standard deviation (2.80 times the standard deviation of 40.34 $\mu\text{S}/\text{cm}$). The conductivity reported for RID-1 during fourth quarter 2010 is generally comparable to the conductivity values previously reported for this site.

Wells YES ☒ NO ☐

The dissolved magnesium result for well LS-85 (49.58 mg/L) was flagged as differing from the average value (52.16 mg/L) by greater than two times the standard deviation (0.85 mg/L). The cation-anion balance for the analysis of this sample was 0.59 percent, indicating that the analysis is of good quality.

The conductivity reported for well UR-70 was 5810 $\mu\text{S}/\text{cm}$, which is the highest conductivity value reported to date; the range of values previously reported is 4010 $\mu\text{S}/\text{cm}$ to 5490 $\mu\text{S}/\text{cm}$. The conductivity result was flagged at upload as differing from the average value (4709 $\mu\text{S}/\text{cm}$) by greater than two times the standard deviation (464.19 $\mu\text{S}/\text{cm}$). The fourth quarter 2010 TDS at well UR-70 were also slightly elevated compared to the average value; however, both the conductivity and TDS values are generally comparable with the values previously reported for this well.

UPDES YES ☐ NO ☐

Not applicable. The Operator has not submitted DMR data electronically to the Division's water database.

4. **On what date does the MRP require a five-year resampling of baseline water data.**

Re-sampling for baseline parameters is due every five years during the third or fourth quarter. Baseline parameters for surface water and groundwater monitoring are listed in Table 7-6B and Table 7-7B, respectively. Assuming that the five-year baseline resampling will coincide with permit renewal, the next baseline resampling is due during third or fourth quarter 2015.

5. Based on your review, what further actions, if any, do you recommend?

The Operator should submit the following changes as an amendment to the MRP:

- a) Revise MRP Drawing 7-10 (Water Monitoring Locations) to show spring monitoring location SP-19; and
- b) Revise the monitoring discussion in the MRP and associated tables to specify the locations and frequencies where selenium monitoring will be performed in accordance with Permit condition No. 4.

Does the Mine Operator need to submit more information to fulfill this quarter's monitoring requirements? YES [X] NO []

The Operator needs to submit UPDES monitoring data for fourth quarter 2010.

6. Follow-up from last quarter, if necessary.

Not applicable – fourth quarter 2010 is the first quarter of operational water monitoring.

Did the Mine Operator submit all the missing and/or irregular data (datum)?

Not applicable – fourth quarter 2010 is the first quarter of operational water monitoring.